

# Editorial Index 1969

Index to editorial articles appearing in Iron Age  
Metalworking International during the year 1969

## Automation

Adaptive Turning Makes Debut, Oct p 30  
Automated Electronic System Controls Foundry Operations, Feb p 32  
Automated Forging Press, Jan p 39  
Computer Eases Startup, July p 27  
Computerized Sheet Production, Feb p 46  
Computers Assist at Drawing Board, Nov p 48  
Foundry Process Computer, Sept p 31  
Hardness Tests Automated, Feb p 45  
Machined Components Checked With On-Line Computer, July p 26  
Matching Materials and Process Reduces Production Costs, July p 22  
Monitoring System Links Mill Floor, Production Control, Sept p 26  
Program Sequence Control, Nov p 39  
Punched Cards Control Mill, Feb p 43  
Rotary Transfer Arrangement Speeds Forging Operation, Feb p 44  
Tape Controls Tube Plating, Jan p 37  
Tracer Controls Compute With NC, Dec p 32

## Casting

Casting Alloy Checks Friction, Sept p 30  
Casting Process Makes Coins, Nov p 37  
Diecasting Battles Competition With Advanced Techniques, Aug p 23  
High-Performance Pump Allows Hot-Chamber Die Casting, Apr p 42

## Cold Extrusion

Multi-Stage Cold Extrusion Is Achieved Without Annealing, June p 44  
Research and Development Produces Better Extrusions, Nov p 44

## Cold Forming

Cold Forming Flexibility Extends Its Potential, Aug p 28  
Ford Plans Greater Use of Rough Roll-Formed Gears, Feb p 40  
NC Directory, Dec p 41

## Continuous Casting

Cast Composites Cut Cost, Nov p 43

## Drawing

Metal Stampers Discuss Ways to Better Products, Reduce Costs, July p 17

## Fabricating

Automatic Assembly System Includes Machining, Inspection, Aug p 36  
Electromagnetic Forming, Mar p 37  
Plated Plastics Get New Tasks, Feb p 30  
Stainless Extrusions Save Machining Time, Oct p 37  
The Emergence of Epoxies, Sept p 34  
The New Generation of Aircraft, Oct p 27  
Versatile Beam Welding Mills Produce Structural Shapes, Oct p 34

## Fasteners

How Tight is Tight?, May p 23  
Low-Cost Fastener System Improves Fatigue Life, Nov p 46  
Rivet Design Saves Time, Feb p 37

## Flame Cutting

NC Directory, Dec p 41

## Forging

Automated Forging Press, Jan p 39  
Despite Growing Competition, Forging Industry Fights Back, Mar p 28  
Finished Forgings by Automation, Aug p 27  
Numerically Controlled Machine Forges Stainless Steel Bars, Jan p 36  
Rotary Transfer Arrangement Speeds Forging Operations, Feb p 44

## Foundry

Automated Electronic System Controls Foundry Operations, Feb p 32  
Foundry Process Computer, Sept p 31  
New Process Permits Casting Centrifugally, Continuously, Feb p 36

## Heat Treating

Heat Treating Aluminium, Mar p 30  
Matching Materials and Process Reduces Production Costs, July p 22  
New Melting, Treating Methods Advance Steel Technology, Jan p 23  
Surface Hardening Gets Better, Dec p 34

## Hot Extrusion

Research and Development Produces Better Extrusions, Nov p 44

## Hydraulics

Hydraulic Fluid Cost Trimmed, Oct p 38

## Inspection

High-Output Inspection, Apr p 43  
Interchangeable Bearing Parts Result of Complete Uniformity, Jan p 34  
Improved Methods Expedite Slab and Strip Marking, Apr p 36  
Machined Components Checked With On-Line Computer, July p 26  
Nucleonic Thickness Gauge, Oct p 33

## Joining

Adhesive Eases Assembly, Apr p 35  
Explosive Bonding Technology Finds Uses in Metalworking, Jan p 30  
The Emergence of Epoxies, Sept p 34  
Two Bonding Systems Joined, Apr p 31  
Vacuum Brazing Easily Joins Hard-to-Braze Materials, July p 20  
Vapours for Sound Joints, Feb p 33

## Lubrication

Coolant Chart Helps Select Fluids For Internal Grinding, Aug p 34

## Machine Tools

A Shop Man's Approach to Machine Tool Replacement, Mar p 15  
Welds Cut Lathe Building Costs, Nov p 50

## Machining

Abrasives Cut Thick Plates, Jan p 33  
Adaptive Turning Makes Debut, Oct p 30  
Automated Transfer Units Speed Wheel Machining, Nov p 40  
Automatic Assembly System Includes Machining, Inspection, Aug p 36  
Combined Milling, Routing, Mar p 40  
Coolant Chart Helps Select Fluids For Internal Grinding, Aug p 34  
Copying Lathe Saves 70%, May p 29  
Cross Slides Add Flexibility, May p 40  
Efficient NC Machining Centre Has Auxiliary Multi-Spindle Unit, July p 28  
Electrical Machining Finds Production Jobs, Apr p 27  
European Machine Tool Exhibition Preview, June p 53  
Exapt Progress Report: More Applications, Automation, June p 35  
Fine Holes Are Drilled in Steps, Feb p 38  
Four-Station Transfer Line Replaces 30 Machine Tools, Jan p 40  
Improved Carbide Tool Life, July p 30  
Laser in Use for Machining, Feb p 39  
Linked Lathe Line Has High Flexibility, Automation, Aug p 38  
Machining Centre That Turns Adds Versatility to Machining, Nov p 42  
Machining the Wankel Engine, Apr p 40  
New Milling Cutter Improves Finish And Production Rate, Jan p 38  
NC Directory, Dec p 41  
NC Sawing and Drilling Finds Uses in Structural Steel Works, Sept p 32  
NC Machine Workshop Has Jig Bore, Machining Centres, Sept p 28  
NC Grinder Begins Production, Oct p 36  
NC Speeds Order Processing, Feb p 42  
Open-Loop NC Systems, June p 31  
Planning and Organizing for NC, Dec p 17  
Planning Replaces Milling of Titanium Extrusions, May p 26  
Planning and Organizing for NC, Oct p 15  
Planning for Numerical Control, June p 22  
Program Sequence Control, Nov p 39  
Remote & In-House Computers Control 13 NC Machines, July p 24  
Time Sharing Cuts NC Costs, Apr p 38  
Tracer Controls Compute With NC, Dec p 32  
Versatile Machining Centre Has Dual Tool Changing System, Mar p 38  
When Computers Run Machines, June p 33  
Versatile NC Machining Center, May p 38

## Management

A Shop Man's Approach to Machine Tool Replacement, Mar p 15  
Better Industrial Training Needed, Apr p 19  
Case Studies in Cost Reduction, Feb p 19  
How To Set Up and Use A Profit Improvement Plan, Jan p 15  
Management in the U.K.: A Review, Aug p 12  
Managing Design Engineering: A Science or an Art?, Nov p 25  
NC Speeds Order Processing, Feb p 42  
Planning and Organizing for NC, Oct p 15  
Planning and Organizing for NC, Dec p 17  
Planning for Numerical Control, June p 22  
Small Plant Uses Time Wisely, May p 13  
Steel Industry Integration: Has It Gone Too Far?, July p 8  
Steel Plant Planning, Management, Sept p 11

## Materials

Aluminium Alloy Bearings, June p 45  
Cast Composites Cut Cost, Nov p 43  
Changing Trends in Use of Automotive Materials, June p 42  
Machine Tool Builders Enter Plastics Machinery Field, Feb p 27  
Metal Remembers Its Shape, Nov p 49  
Plated Plastics Get New Tasks, Feb p 30  
Raw Material Transportation: Developments Bring Economies, Dec p 36  
Stainless Extrusions Save Machining Time, Oct p 37  
The Multi-Shapes of Single-Crystal Filaments, Nov p 35  
The New Generation of Aircraft, Oct p 27  
Titanium Explores Its Problems, Apr p 32

## Materials Handling

Automated Transfer Units Speed Wheel Machining, Nov p 40  
Materials Handling Technology Comes Into Focus, Mar p 23

## Metal Finishing

Flame-Plating Process Provides Wear Resistance, Apr p 34  
Plated Plastics Get New Tasks, Feb p 30  
Platers Have Several Options In Pollution Control, Feb p 34  
Reliable Plating Process, June p 41  
Sputter Coating Gains Favour, June p 38  
Tape Controls Tube Plating, Jan p 37  
The Emergence of Epoxies, Sept p 34  
Vibratory Finishing, Aug p 29

## Metallurgy

A Method To Identify Steels, May p 35  
Casting Alloy Checks Friction, Sept p 30  
Improved Carbide Tool Life, July p 30  
New Nickel-Base Alloy Solves Weld-Zone Corrosion Problems, Aug p 30  
Powder Metallurgy Produces New Tool Steels, May p 28

## Nonferrous

Copper: World Political Metal, May p 32

## Numerical Control

Computer Numerical Control Reshapes Small Shop Goals, May p 36  
Computer System Inspects And Adjusts Carburetors, Mar p 36  
Exapt Progress Report: More Applications, Automation, June p 35  
Five-Axis NC Welder, Mar p 31  
Machining Centre That Turns Adds Versatility to Machining, Nov p 42  
NC Adds New Dimension to Sheet Metalworking, Dec p 29  
NC Grinder Begins Production, Oct p 36  
NC Machining Workshop Has Jig Bore, Machining Centres, Sept p 28  
NC Sawing and Drilling Finds Uses in Structural Steel Work, Sept p 32  
NC Speeds Order Processing, Feb p 42  
Numerically Controlled Machine Forges Stainless Steel Bars, Jan p 36  
Open-Loop NC Systems, June p 31  
Planning and Organizing for NC, Oct p 15  
Planning and Organizing for NC, Dec p 17  
Planning for Numerical Control, June p 22  
Remote & In-House Computers Control 13 NC Machines, July p 24  
Tape Controls Tube Plating, Jan p 37  
Time Sharing Cuts NC Costs, Apr p 38  
Versatile Machining Centre Has Dual Tool Changing System, Mar p 38  
Versatile NC Machining Center, May p 38  
When Computers Run Machines, June p 33

## Plastics

Machine Tool Builders Enter Plastics Machinery Field, Feb p 27  
Plated Plastics Get New Tasks, Feb p 30  
Ultrasonic Plastics Welding, Aug p 37

## Pollution Control

Platers Have Several Options In Pollution Control, Feb p 34  
New Design Extends Bearing Life, May p 34  
Powder Metallurgy Produces New Tool Steels, May p 28

## Power Transmission

Interchangeable Bearing Parts Result of Complete Uniformity, Jan p 34

## Presswork

Computer Numerical Control Reshapes Small Shop Goals, May p 36  
Despite Growing Competition, Forging Industry Fights Back, Mar p 28  
Die Insert Boosts Capacity, Mar p 35  
Fine Blanking Is Improving Productivity, Product Quality, Nov p 38  
Isostatic Press Automates, May p 31  
Metal Stampers Discuss Ways to Better Products, Reduce Costs, July p 17  
Novel Press Installation, Nov p 47  
NC Adds New Dimension to Sheet Metalworking, Dec p 29  
NC Directory, Dec p 41  
Reducing Hydraulic Shock, Oct p 39

## Rolling

Novel Slitting Line Adjusts For Gauge Differences, Mar p 34  
Ring Rolling Mills Feature High Rolled-Section Consistency, May p 30

## Stamping

Metal Stampers Discuss Ways to Better Products, Reduce Costs, July p 17  
NC Adds New Dimension to Sheet Metalworking, Dec p 29

## Steelmaking

Abrasive Grinding for Slabs, Sept p 27  
A Methods To Identify Steels, May p 35  
Better LD Refractory Practices, June p 39  
Coal Tar Pitch Conversion, May p 27  
Coating Saves Electrodes, Feb p 41  
Computer Eases Startup, July p 47  
Computerized Sheet Production, Feb p 46  
Gas Jets Heat Billets Quickly, Jan p 29  
Copying Lathe Saves 70%, May p 29  
Improved Methods Expedite Slab and Strip Marking, Apr p 36  
LD-Kaldo Process Speeds High-Phosphorous Steelmaking, Mar p 32  
Monitoring System Links Mill Floor, Production Control, Sept p 26  
New Melting, Treating Methods Advance Steel Technology, Jan p 23  
New South African Complex Produces Vanadium and Steel, Aug p 32  
Novel Direct Reduction Process Begins Commercial Operations, June p 37  
Punched Cards Control Mill, Feb p 43  
Raw Material Transportation: Developments Bring Economies, Dec p 36  
Ring Rolling Mills Feature High Rolled-Section Consistency, May p 30  
Steel Industry Integration: Has it Gone Too Far?, July p 8  
Steel Strip From Powder Metal, Oct p 32  
Supervisory Computers in Steel, July p 32

## Testing

Computer System Inspects And Adjusts Carburetors, Mar p 36  
Hardness Tests Automated, Feb p 45  
Material Flaws Testing, July p 25  
Nucleonic Thickness Gauge, Oct p 33  
Photoelastic Analysis, Aug p 31

## Welding

Cleaning: First Stage in Welding, Sept p 24  
Explosive Bonding Technology Finds Uses in Metalworking, Jan p 30  
Five-Axis NC Welder, Mar p 31  
How to Control Weld Distortion, Sept p 25  
Low-Cost Friction Welding, Apr p 39  
Remote & In-House Computers Control 13 NC Machines, July p 24  
Spotlight on Spot Welding: Improvements Enhance Process, Sept p 19  
"Tailored" Welding Electrodes Are Designed to Fill a Need, June p 40  
Tests Predict Weldability, Sept p 23  
Titanium Explores Its Problems, Apr p 32  
Tungsten Scrap Is Wasted, June p 43  
Two Bonding Systems Joined, Apr p 31  
Ultrasonic Plastics Welding, Aug p 37  
Versatile Beam Welding Mills Produce Structural Shapes, Oct p 34  
Welding Box Columns, Jan p 35  
Welds Cut Lathe Building Costs, Nov p 50